

APPENDIX A

Patent/Claim	Claim Language
U.S Patent No. 6,950,469, claim 1 (emphasis added) Pixel Averages Patent	<p>1. A method of interpolation in video coding in which an image comprising pixels arranged in rows and columns and represented by values having a specified dynamic range, the pixels in the rows residing at unit horizontal locations and the pixels in the columns residing at unit vertical locations, is interpolated to generate values for sub-pixels at fractional horizontal and vertical locations, the fractional horizontal and vertical locations being defined according to $\frac{1}{2}^x$, where x is a positive integer having a maximum value N, the method comprising:</p> <ul style="list-style-type: none"> a) when values for sub-pixels at $\frac{1}{2}^{N-1}$ unit horizontal and unit vertical locations, and unit horizontal and $\frac{1}{2}^{N-1}$ unit vertical locations are required, interpolating such values <i>directly using weighted sums of pixels residing at unit horizontal and unit vertical locations</i>; b) when values for sub-pixels at $\frac{1}{2}^{N-1}$ unit horizontal and $\frac{1}{2}^{N-1}$ unit vertical locations are required, interpolating such values <i>directly using a choice of a first weighted sum of values for sub-pixels residing at $\frac{1}{2}^{N-1}$ unit horizontal and unit vertical locations and a second weighted sum of values for sub-pixels residing at unit horizontal and $\frac{1}{2}^{N-1}$ unit vertical locations, the first and second weighted sums of values being calculated according to step (a); and</i> c) when a value for a sub-pixel situated at a $\frac{1}{2}^N$ unit horizontal and $\frac{1}{2}^N$ unit vertical location is required, interpolating such a value by <i>taking a weighted average of the value of a first sub-pixel or pixel situated at a $\frac{1}{2}^{N-m}$ unit horizontal and $\frac{1}{2}^{N-n}$ unit vertical location and the value of a second sub-pixel or pixel located at a $\frac{1}{2}^{N-p}$ unit horizontal and $\frac{1}{2}^{N-q}$ unit vertical location</i>, variables m, n, p and q taking integer values in the range 1 to N such that the first and second sub-pixels or pixels are located diagonally with respect to the sub-pixel at $\frac{1}{2}^N$ unit horizontal and $\frac{1}{2}^N$ vertical location.

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U.S. Patent No. 7,280,599, claim 1 (emphasis added) Pixel Averages Patent	<p>1. A method for sub-pixel value interpolation to determine values for sub-pixels situated within a rectangular bounded region defined by four corner pixels with no intermediate pixels between the corners, the pixels and sub-pixels being arranged in rows and columns, the pixel and sub-pixel locations being representable mathematically within <i>the rectangular bounded region using the co-ordinate notation K/2N, L/2N, K and L being positive integers having respective values between zero and 2N</i>, N being a positive integer greater than one and representing a particular degree of sub-pixel value interpolation, the method comprising:</p> <p style="padding-left: 2em;">interpolating a sub-pixel value for a sub-pixel having co-ordinates with <i>odd values of both K and L</i>, according to a predetermined choice of <i>a weighted average</i> of the value of a nearest-neighbouring pixel and the value of the sub-pixel situated at co-ordinates $\frac{1}{2}$, $\frac{1}{2}$, and <i>a weighted average</i> of the values of a pair of diagonally-opposed sub-pixels having co-ordinates with <i>even values of both K and L</i>, including zero, situated within a quadrant of the rectangular bounded region defined by corner pixels having co-ordinates $\frac{1}{2}$, $\frac{1}{2}$ and the nearest neighbouring pixel;</p> <p style="padding-left: 2em;">interpolating sub-pixel values for sub-pixels having co-ordinates with <i>K equal to an even value and L equal zero</i> and sub-pixels having co-ordinates with <i>K equal to zero and L equal to an even value</i>, used in the interpolation of the sub-pixels having co-ordinates with <i>odd values of both K and L</i>, using <i>weighted sums</i> of the values of pixels located in rows and columns respectively; and</p> <p style="padding-left: 2em;">interpolating sub-pixel values for sub-pixels having co-ordinates with <i>even values of both K and L</i>, used in the interpolation of sub-pixel values for the sub-pixels having co-ordinates with <i>odd values of both K and L</i>, using a predetermined choice of either <i>a weighted sum</i> of the values of sub-pixels having co-ordinates with <i>K equal to an even value and L equal to zero</i> and the values of sub-pixels having corresponding co-ordinates in immediately adjacent rectangular bounded regions, or <i>a weighted sum</i> of the values of sub-pixels having co-ordinates with <i>K equal to zero and L equal to</i></p>

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	<p><i>an even value</i> and the values of sub-pixels having corresponding co-ordinates in immediately adjacent bounded rectangular regions.</p>
<p>U.S. Patent No. 8,036,273, claim 1 (emphasis added)</p> <p>Pixel Averages Patent</p>	<p>1. A method for sub-pixel value interpolation to determine values for sub-pixels situated within a rectangular bounded region defined by four corner pixels with no intermediate pixels between the corners, the pixels and sub-pixels being configured for display in rows and columns, pixel and sub-pixel locations in the rows and columns being representable mathematically within <i>the rectangular bounded region using the co-ordinate notation K/2N, L/2N, K and L being positive integers having respective values between zero and 2N</i>, N being a positive integer greater than one and representing a particular degree of sub-pixel value interpolation, the method comprising causing an apparatus to:</p> <p style="margin-left: 2em;">interpolate a sub-pixel value for a sub-pixel having co-ordinates with <i>odd values of K and L</i>, according to a predetermined choice of either <i>a weighted average</i> of the value of a nearest-neighbouring pixel and the value of the sub-pixel situated at co-ordinates $\frac{1}{2}, \frac{1}{2}$, or a <i>weighted average</i> of the values of a pair of diagonally-opposed sub-pixels having co-ordinates with <i>even values of K and L</i>, including zero, situated within a quadrant of the rectangular bounded region, the quadrant being defined by the sub-pixel having co-ordinates $\frac{1}{2}, \frac{1}{2}$ and the nearest neighbouring pixel;</p> <p style="margin-left: 2em;">interpolate sub-pixel values for sub-pixels having co-ordinates with <i>K equal to an even value and L equal to zero</i> and sub-pixels having co-ordinates with <i>K equal to zero and L equal to an even value</i>, used in the interpolation of the sub-pixels having co-ordinates with <i>odd values of K and L</i>, using <i>weighted sums</i> of the values of pixels located in rows and columns respectively; and</p> <p style="margin-left: 2em;">interpolate sub-pixel values for sub-pixels having co-ordinates with <i>even values of K and L</i>, used in the interpolation of sub-pixel values for the sub-pixels having co-ordinates with <i>odd values of K and L</i>, using a predetermined choice of either a <i>weighted sum</i> of the values of sub-pixels having co-ordinates with <i>K equal to an even value and L equal to zero</i> and the values of sub-pixels having corresponding co-ordinates in</p>

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	immediately adjacent rectangular bounded regions, or a <i>weighted sum</i> of the values of sub-pixels having co-ordinates with <i>K equal to zero and L equal to an even value</i> and the values of sub-pixels having corresponding co-ordinates in immediately adjacent rectangular bounded regions.
U.S. Patent No. 6,968,005, claim 1 (emphasis added) Sequence Indicator Patent	1. A method of <i>encoding a video signal</i> representing a sequence of pictures to form an encoded video signal comprising temporally independent INTRA pictures and temporally predicted pictures, wherein the INTRA pictures and at least some of the temporally predicted pictures are used to form reference pictures for the temporal prediction of other pictures in the video sequence, comprising <i>indicating an encoding order of those pictures used to form reference pictures in the encoded video signal with a sequence indicator having an independent numbering scheme, such that consecutive pictures used to form reference pictures in encoding order are assigned sequence indicator values that differ with respect to each other by a predetermined amount</i> independent of the number of non-reference pictures encoded between successive reference pictures.
U.S. Patent No. 6,968,005, claim 5 (emphasis added) Sequence Indicator Patent	5. A method of <i>decoding an encoded video signal</i> representing a sequence of pictures to form a decoded video signal, the method comprising receiving an encoded video signal comprising temporally independent INTRA pictures and temporally predicted pictures, wherein the INTRA pictures and at least some of the temporally predicted pictures are used to form reference pictures for the temporal prediction of other pictures, the encoded video signal further comprising a <i>sequence indicator having an independent numbering scheme such that consecutive reference pictures in encoding order are assigned sequence indicator values that differ with respect to each other by a predetermined amount</i> independent of the number of non-reference pictures encoded between successive reference pictures, decoding received encoded pictures, <i>examining each decoded picture that forms a reference picture to identify the sequence indicator value assigned to the reference picture and comparing the sequence indicator values assigned to consecutively decoded reference pictures to detect loss of a reference picture.</i>

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U.S. Patent No. 8,144,764, claim 1 (emphasis added) Sequence Indicator Patent	1. A method of encoding a video signal using an encoder to form an encoded video signal, the video signal representing a sequence of pictures, the method comprising <i>the encoder using an independent numbering scheme, to assign consecutive reference pictures in encoding order with respective sequence indicator values that differ with respect to each other by a predetermined amount</i> independent of one or more of the number of non-reference pictures encoded between consecutive reference pictures and the number of non-coded pictures between consecutive reference pictures.
U.S. Patent No. 7,724,818, claim 1 (emphasis added) Parameter Set Patent	1. <i>A method for encoding sequences of pictures</i> into a bitstream, wherein parameters are defined in a parameter set and each picture comprises information of one or more slices, the method comprising: <i>defining, in an encoder, parameter values in a sequence parameter set for a sequence of pictures;</i> <i>defining, in the encoder, parameter values in a picture parameter set for a picture; and</i> <i>defining, in the encoder, at least one picture parameter value in a slice header, the picture parameter value remaining unchanged at least in all slice headers of one picture.</i>